DPOLY Newsletter

October 22, 2001

Call for Nominations: Executive Committee Elections

The Nominating Committee has proposed the following slate of candidates for positions on the DPOLY Executive Committee:

For Vice Chair:
John Torkelson , Northwestern University
Richard Register, Princeton University

For Member-at-Large:
Gerald Fuller, Stanford University
John Curro, Sandia National Laboratory

Call for Nominations: Executive Committee Elections

Members of the Division are hereby invited to submit nominations for these positions. As provided by the Bylaws, any candidate named by not less than 1% of Division members (currently, 11) shall be considered nominated. Nominations should be sent to the Secretary-Treasurer and must be received no later than **November 23, 2001**.

2002 Polymer Physics Prize and 2002 Dillon Medal

Thomas A. Witten (University of Chicago) will receive the 2002 Polymer Physics Prize, sponsored by the Ford Motor Company. The citation will be:

For outstanding theoretical contributions to the understanding of polymers and complex fluids

Timothy J. Bunning (Air Force Research Laboratory) will receive the 2002 Dillon Medal, sponsored by Elsevier Science Ltd., publisher of Polymer. The citation will be:

For his outstanding accomplishments in developing polymer based materials for optical applications and for elucidating the physics and chemistry underlying their

formation.

The winners will be honored by special symposia at the March Meeting of the Division.

MEMBERS WANTED!

Remember ï the first year membership in APS and DPOLY for students is free! Membership forms are available on-line at http://www.aps.org/memb/stapp.html.

DEADLINES

November 23	Executive Committee Nominations
November 9	Padden Award Nominations
December 7	Abstracts for March Meeting

March 2002 Program

The next March Meeting will be held in Indianapolis, IN the week of March 18-22, 2002.The DPOLY Program Chair is Karen Winey (University of Pennsylvania, e-mail: winey@lrsm.upenn.edu).Planned focused symposia are described below. Abstracts should be submitted via the web or e-mail according to the guidelines on the next page and available from the APS or DPOLY Home Pages. The deadline for abstracts is December 7, 2001.(Nominations and abstracts for the Padden Award and Symposium are due November 9, 2001.).

Session chairs are sought for the contributed sessions. No experience is necessary and APS will send you guidelines. If you are interested in serving as a session chair please email Karen your contact information (name, institution, mailing address, and email) and a list of research interests by November 15, 2001.

The DPOLY program committee has substantially revised the sorting categories for the March meeting as listed below. You will first notice that there are now 13 permanent categories, of which the first eight categories (4.1 to 4.8) are divided by material type to facilitate discussions about all aspects of a polymer type. In September a more complete description of the new sorting categories was distributed via email to DPOLY members. The members of the program committee and the DPOLY members who sort the abstracts believe these new sorting categories will provide an improved meeting program. When submitting your abstract, please thoughtfully consider which sorting category is most appropriate.

March Meeting ID: MAR02

4. Polymeric and Organic Materials

4.1 Semi-Crystalline Polymers

4.2 Liquid Crystalline Polymers

4.3 Solid Amorphous Polymers

4.4 Melts, Solutions and Gels

4.5 Rubbers and Networks

4.6 Charged and Ion-Containing Polymers

4.7 Block and Graft Copolymers

4.8 Blends and Composites

4.9 Electrically and Optically Active Materials

4.10 Surfaces

4.11 Thin Films

4.12 Experimental Techniques

4.13 Theory and Simulation

Special Focus Topics

4.14.1 Polymer-Cell Interactions (DPOLY/DBP)

4.14.2 Polymer Nanostructures (DPOLY/DMP)

4.14.3 Simulations of Thermodynamics and Dynamics (DPOLY/DCOMP)

4.14.4 Glass Transition in Bulk Polymers (DPOLY)

4.14.5 Polymer Processing (DPOLY)

4.14.6 Organic Electronic Materials and Devices (DMP)

4.14.1 Polymer-Cell Interactions (DPOLY/DBP)

The interactions between living cells and polymers are critical in a variety of well-known in vivo applications, such as joint replacements, cardiovascular stents, dental implants, drug delivery, etc. In addition, polymer-cell interactions are important in a variety in vitro applications, including cell cultures and tissue engineering. It is the goal of this symposium to examine the characteristics of polymers and their surfaces that promote and/or prohibit a specific cell activity. Organic monolayers, hydrogels, and non-degradable polymers, as well as biopolymers are of interest. This symposium will also examine the role of spatial constraint on cell behavior in 2D and 3D systems.(Organizer: **Russell J. Composto**)

4.14.2 Polymer Nanostructures (DPOLY/DMP)
Polymers with controlled nano-scale morphologies continue to be of considerable interest for a wide range of applications from structural materials for the transportation sector to electrically- or optically-active polymers for the communication sector. The nano-scale heterogeneity in these systems can originate from fillers (layered silicates, carbon nanotubes, etc.), chemical heterogeneity of the polymer (block copolymers, ionomers, etc.), and/or variations in the morphology (semi-crystallinity, etc.). The resulting nanostructures can be exploited as is or further enhanced, such as by metal decoration. This symposiums will address both what is currently understood and what still needs to be resolved to fully apply these new materials.(Organizer: **Karen I. Winey**)

4.14.3 Simulations of Thermodynamics and Dynamics (DPOLY/DCOMP)
The state of the art in computer simulations of polymers has advanced rapidly over the past decade, due to a dramatic increase in available computer power and new computer architectures. The connections between the most microscopic descriptions of monomer properties using quantum computational chemistry techniques, via atomistic force fields and simulations, up through more coarse-grained descriptions of polymers are of particular interest. This symposium will consider both equilibrium and transient phenomena in polymeric systems. This focus topic follows along the theme of the successful 2001 DPOLY short course. (Organizer: **Scott T. Milner**)

4.14.4 Glass Transition in Bulk Polymers (DPOLY)
While simplistic descriptions of the glass transition in polymer melts are given regularly in undergraduate classes and textbooks, the details of this phenomena continue to be disputed. At the root of the matter is how polymers move in response to thermal energy when surrounded by other polymers. Both experimental and theoretical perspectives will be presented. This symposium will compliment the 2002 DPOLY short course on this subject.(Organizer: **Ralph Colby**)

4.14.5 Polymer Processing (DPOLY)
Industrial polymer processing is complex, because it can involve one or more of the following: large temperature gradients, high pressures, pressure gradients, high speeds, shear deformation, bi-axial tensions, etc. Moreover, many processing methods involve not only thermal and mechanical manipulations, but also chemical changes during processing. The objective of this focus topic is to access the level of physical understanding in the field and identify ways to further that understanding using a physics perspective. Various classes of polymers and products will be considered.
(Organizer: **Karen I. Winey**)

4.14.6 Organic Electronic Materials and Devices (DMP)
This focused session will be devoted to conjugated polymers and other organic materials for electronic and photophysical applications. Both the fundamental science and applications of these materials will be addressed. Topics to be covered include, but are not limited to: characterization of the fundamental excitations; transport and other electrical properties; new materials; applications such as light-emitting diodes, photodetectors, solar cells, lasers and thin film transistors; and materials issues such as

contacts, defects and mechanisms of aging and failure.(Organizers: **Zoltan Soos** and **Darryl Smith**)

Web Submission of Abstracts

APS members can now submit abstracts via the World Wide Web by pointing their browsers to http://abstracts.aps.org. Simply click "Prepare an Abstract," and when the next page appears, select a meeting by clicking the appropriate button to the left of the meeting (**March Meeting ID: MAR02**).Specify the number of authors and collaborations or teams for your abstract, and click the "Create an Abstract for Me" button. We recommend that, prior to submitting abstracts, new users select the Test meeting and complete all steps in order to familiarize themselves with the process. Additional information can be found on the web at http://www.aps.org/meet/MAR02/abs.html

Call for Nominations: Frank J. Padden Jr. Award

The Frank J. Padden, Jr. Award, consisting of a certificate and appropriate recognition, recognizes a graduate student for "Excellence in Polymer Physics Research." To be considered for this award the student must be a member of the DPOLY, must be working toward the Ph.D. degree, must not have completed the requirements for the Ph.D. before November 9, 2001, and must submit the following:

1. an acceptable abstract for the DPOLY March Meeting (Note: Please submit by email and provide a paper copy for the award committee),
2. a 1 page C.V. (do NOT send papers or other attachments),
3. a letter from their thesis adviser addressing the quality of the graduate research and academic excellence.

Abstracts should be submitted by email to the APS by **November 9, 2001**. Please submit the abstract to Sorting Category 4 and in the template space for Special Instructions, please insert "**Padden Award Symposium**". The abstract will be forwarded to the program chair for inclusion in the March meeting. A hard copy of the abstract, the C.V., and the adviser's letter should be sent directly to Frank Bates by email or to the address below. They must be received by **November 9, 2001**

Frank S. Bates
Dept. of Chem. Engr. and Materials Science
University of Minnesota
421 Washington Ave. SE
Minneapolis, MN 55455
E-mail: bates@cmes.umn.edu

The Education Committee will select 5 finalists based on quality of the research, abstract, C.V., and the adviser's letter. The finalists will be invited to attend a dinner (sponsored by the University of Akron) with members of the DPOLY Education Committee. The

Padden Award session will be held during the March Meeting. Each of the 5 finalists will give a 12 minute (including time for questions) oral presentation. The session will be attended by the Education Committee, who will serve as judges, and by any other interested members of DPOLY or APS. The winner will be selected based on quality of the research, the presentation, and response to questions. The winner will be announced at the annual Business Meeting of the Division.

DPOLY Short Course:

Glasses and the Glass Transition
March 16-17, 2002-
Indianapolis, IN

Registration fees: $400 ($200 for students)
A limited number of full scholarships are available for students. To apply, the student's faculty advisor must send a letter to the organizer by January 15, stating that the applicant is a student and how the student would benefit from the course.

Who should attend: Persons from both academic and applied/industrial institutions will benefit from attending this course. The course will be relevant to industrial physicists, chemists and engineers, as well as graduate students, post-docs and faculty interested in glassy materials. The course assumes a B. S. training in engineering or the physical sciences, but assumes no prior experience with glasses.

Topics to be covered:

Calorimetry methods
NMR methods
Scattering methods
Physical aging
Computer simulations
Dynamic heterogeneities
Energy landscape models
Mode coupling models

Course description: Glass formation occurs whenever crystallization is prevented while cooling a liquid. There are important features of glasses and the glass transition that are ubiquitous to all glass-forming liquids. These universal features, as well as distinct aspects of inorganic, organic and polymeric glasses, will be addressed. Experts will summarize the recent advances in this field in a tutorial style.

Organizer:

Ralph H. Colby
Materials Science and Engineering

The Pennsylvania State University
University Park, PA16802

Confirmed speakers:

C. Austen Angell, Arizona State University
Pablo G. Debenedetti, Princeton University
Mark D. Ediger, University of Wisconsin
Sharon C. Glotzer, University of Michigan
Gregory B. McKenna, Texas Tech University
Francesco Sciortino, University of Rome
Alexei Sokolov, University of Akron
Bernhard Wunderlich, University of Tennessee

Special Issue: Journal of Polymer Science, Polymer Physics Edition

The **Journal of Polymer Science:Part B:Polymer Physics** will publish its eleventh annual DPOLY Special Issue this year, showcasing papers presented in the DPOLY program at the 2002 March Meeting. The 2002 Special Issue will be an "electronic collection": papers will appear in the printed version of the journal in an average of eight weeks after acceptance (five weeks to on-line publication), but are also collected together and highlighted in the on-line version of the journal. This electronic Special Issue of the journal is accessible to everyone, regardless of whether they have a personal or institutional subscription to the journal. The link to this electronic collection is the top item on the journal's web page, guaranteeing prominence for the articles which it contains. Contributors will also enjoy the usual benefits of publishing in the **Journal of Polymer Science:Part B:Polymer Physics**: no page charges; 50 free high-quality, glossy reprints; and rapid publication. The deadline for manuscript submission for the 2002 Special Issue will be **May 1, 2002**.The Guest Editor for the 2002 DPOLY Special issue is:

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Further details regarding manuscript submission can be found on the DPOLY website, under "Publications". Feel free to contact the Guest Editor if you have any questions.